

WIRELESS SPY ROBOT**¹Mrs. P. M. Chavan, ²Shruti Kharde, ³Mukta Jade, ⁴Ankita Jadhav**

Assistant Professor¹, BE Student Department of Electronics and Telecommunications Engineering, PES
Modern College of Engineering, Shivaji nagar, Pune - 411005, India.²³⁴
shrutikharde@gmail.com

ABSTRACT

A robot is an integration of mechanics, electronics and software. Robots are essentially a self contained tribute to the wonders of technology. Robots if well designed in architecture and programmed with concepts of artificial intelligence can ease the human work. There are many different reasons for using a robot. Use of robots reduces labour and cost by automating recurring tasks. Human intervention is avoided hence less chances of errors and better accuracy can be expected. And most importantly the areas where human life can have risk, danger; at such places robots can navigate dangerous places and potentially save lives. The most advanced robotic models use fast computer processing, high-definition cameras, artificial intelligence and long-range sensors. They are used for surveillance. Our project is all about developing a wireless surveillance robotic vehicle which can navigate through obstacles with the help of sensors, embedded system and its programming. It will be able to capture the footage or pictures of area with its camera eye and send them back using wireless transmission technology such as Bluetooth. Surveillance of international border areas, industries, banks, shopping malls, and any other suspected areas is a difficult task to be done. It is not possible to scrutinize everything at each and every moment. In this case, a requisite solution can be a robot which automatically detects any suspicious activity or condition and reports to the control unit. This project is on a surveillance robot which can budge in an area, send images and videos. The whole process can be run on a voice command system. After the data collected from the robot, data are appraised and analysed to get an understandable idea of the surveyed area.

Keywords: Arduino UNO, Ultrasonic sensor, wifi cam module, DC Motor, Battery, servo motor

1. INTRODUCTION:-

This project is aimed at developing a surveillance system which can be controlled remotely by using an Android App. It includes a robot with a Wireless Camera attach to it. This robot captures the high resolution video feed and transmits it to the connected Android device which is used to control robot. In last few decades, many researchers have designed different purpose soldier or surveillance robot. Soldier or surveillance robot is a robot which does the surveillance of International border areas, war field and terrorist activities. Arduino controlled war field spy robot using night vision wireless camera and Android application is very much used nowadays. For the implementation of this robot camera is used for monitoring and for operating Bluetooth module is used. Wireless Controlled Military combat Robot system is a work where the micro wireless camera is fitted and where the video and voice transmitted to the control room by using the Wifi Module. It is done to avoid the obstacles on the way to the target. Rough terrain can be topped as like as human leg behaviour by this structure. Along with this, Voice command is now playing a vital role in the establishment of a surveillance robot with more perfection. Along with this Voice, command helps the user to control the surveillance robot from a distance which can be very significant. Android applications are made to provide the voice command by using Wifi Module under the surveilled area and can control the robot. The robot is controlled by voice command using a Wifi module. Voice command is transmitted by an android application.

2. LITERATURE SURVEY

[1]Juan G. Parada-Salado, Luis E. Ortega-García, Luis F. Ayala-Ramírez, Francisco J. Pérez Pinal [2018] presented a concept on design and construction of a land wheeled autonomous mini-robot (LWAMR) for indoor surveillance. The LWAMR can be autonomous by using a position, speed and distance sensor. In addition, it is capable of sending images and video in real-time by using a spycam, which is controlled by a servomechanism. Details of the design, control algorithm, communication, and human-machine interface (HMI) are given. HMI was implemented in LabVIEW and it is used for monitoring remotely the LWAMR health and surveillance. Communication between the HMI and the LWAMR system was carried out by means of RF transceivers. Results show the effective implementation of this kind of LWAMR system. Advantages of the presented LWAMR are low cost, versatility, modularity, robustness and remote (or not) operation by using a mobile device HMI.

[2]S M Ashish, Madhurya Manjunath, Ravindra L, Mohammed Nadeem, Neelaja K [2018] proposed a concept about a Raspberry Pi based automated robot which fulfils the purpose of surveillance. The robot provides autonomous movement around the facility where it is deployed and will move around the obstacles in its way by detecting them. It detects any kind of human emotions in the facility and alerts the registered users through SMS alert. It also captures the image of the commotion by using a Pi camera.

[3]T. Saravanakumar, D. Keerthana, D. Santhiya, J. Sneha, D. Sowmiya [2018] The main objective of this paper is to develop a virtual environment for detecting suspicious and targeted places for the user without any loss of human life. It is based on the development of a robot vehicle for observing/spying suspicious objects. It can continuously monitor the objects. The robot can move in every direction (left, right, forward and backward). It is used for video surveillance and remotely controls the particular place using Wi-Fi as a medium. The webcam which is placed on the robotic unit will capture the video and it transmits lively to the remote end. The major application of this paper can be analyzed using an HTML web page which can be used to control the movement of the robot. L293D is a quadruple dual H-Bridge motordriven IC.[4]Harshitha R, Muhammad Hameem Safwat Hussain [2018] By means of this paper, the author puts forward a surveillance robot which can be integrated into any kind of household. The base controller of the bot will be the powerful Raspberry Pi 3 Model B. A webcam attached to the Pi monitors the area and sends a notification when any trespassing or obstruction is detected. The camera also possesses a face recognition algorithm which will possess the ability to identify the person responsible for the motion triggering. If it is authorized personnel, the on-board voice assistant will start talking with the person. The notification will be sent only when it's unauthorized personnel and will contain pictures clicked of the trespasser and also activate live streaming of the webcam feed. The live streaming ability of the Pi allows the camera feed to be analyzed from any location using the internet. With such a system, every user will feel more sheltered while they're not at their place of residence or when they've left their children and old ones alone at home. [1]Muhammad Hamza, M Atique-ur-Rehman, w` Shafqat, Subhan Bin Khalid [2019] proposed an idea about a platform to remotely control a surveillance robot over the internet. It will enable us to monitor the activities in the remote and sensitive areas. In traditional security systems, fixed locations are used for monitoring and spying purposes. For such cases, our robotic system is mobile and it can go into those areas where human access is risky, impossible or not suitable and provide us with the footage of those locations. The camera mounted on the robot keeps on capturing the video. This live video from the robot will be streamed on the 4l;webpage and it will be used for both surveillance and controlling the robot movement accordingly. The

movement algorithm of the robot is implemented using CGI scripts and the monitoring is done by utilizing the MJPG video streamer. The aim is to control the robot from anywhere in the world via webpage and to make the delay time as little as possible.

3. PROPOSED SYSTEM

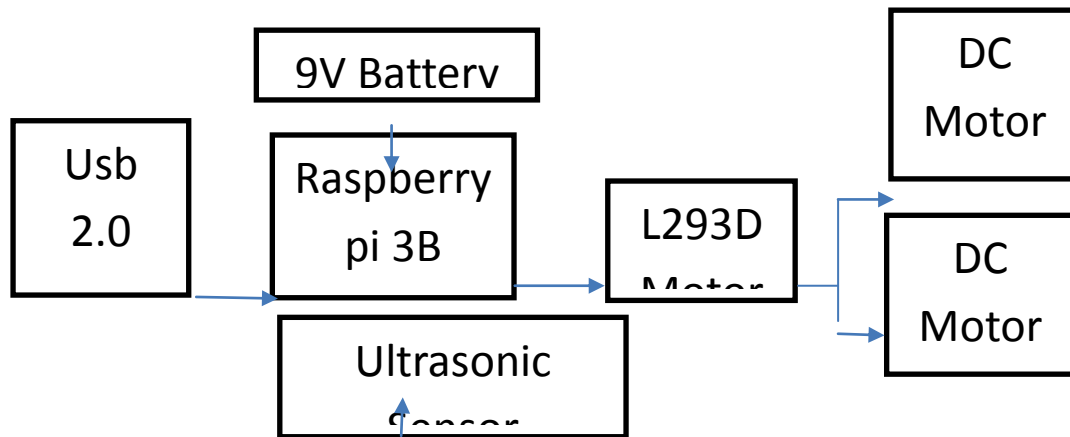


Figure 1: Block diagram of proposed system

The whole system is divided into two parts: Hardware and Software. The hardware is the moving robotic prototype which is used for sensing, capturing and transmitting the captured data. The software consists of a webpage with the required user interface to manually control the robotic movements, to receive the data from the hardware module and to notify the user of any intrusions. The hardware is mainly controlled by the Raspberry Pi 3 microcontroller.

The movements of the robot are controlled by two DC motors which in turn is interfaced to the Raspberry Pi 3 board. The module is powered by a battery.

4. APPLICATION

System we are designing will be dynamic in nature providing better surveillance results than the static surveillance appliances such as CCTV, where it just covers the limited area in less than 45 Degree angle. Our project is movable, so it can cover the area where the wheel will take the robot. It can be also be used in military search and rescue operation to find path in smaller or dangerous caves where human can not enter. To provide medical attention.

5. CONCLUSION

The motion of the robot is being controlled manually using a webpage. According to the movement, we could control the wheel and hence the movement of the robot through the webpage. The input given to the webpage is sent through the internet and desired movement occurs at the robot end.

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